



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

RECEIVED
NRC

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

OCT 31 A 9:58

October 28, 1991
G02-91-196

REGION V

Docket No. 50-397

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NO. NPF-21
NRC INSPECTION REPORT 91-24
AMENDED RESPONSE TO NOTICE OF VIOLATION

The Washington Public Power Supply System hereby amends our previous reply to the Notice of Violation contained in your letter dated September 13, 1991. Our reply, pursuant to the provisions of Section 2.201, Title 10, Code of Federal Regulations, consists of this letter and Appendix A (attached).

In Appendix A, the violation is addressed with an explanation of our position regarding validity, root causes, and date of full compliance. As noted in our initial response on October 14, 1991, this revision was necessary to provide the final results of the root cause analysis and appropriate corrective actions to prevent recurrence. Our prior response also addressed the deficiencies in the System Engineering program and the planned improvements to strengthen the effectiveness of the System Engineer.

Very truly yours,

G. D. Bouche for

G. D. Bouchey, Director
Licensing & Assurance

REF/bk
Attachments

cc: JB Martin - NRC RV
NS Reynolds - Winston & Strawn
PL Eng - NRR
DL Williams - BPA/399
NRC Site Inspector - 901A

4111050133



Appendix A

During an NRC inspection conducted on July 15 through 19 and August 12 through 16, 1991, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1991), the violation is listed below:

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings", states, in part,

"Activities affecting quality...shall be accomplished in accordance with these instructions, procedures or drawings..."

Licensee Administrative Procedure PPM 1.3.12, Revision 13, "Plant Problems - Problem Evaluation Request" states, in part,

"Any Supply System employee who observes a plant problem or a potential significant problem should immediately notify his/her Supervisor and initiate a PER."

Paragraph 1.3.12.3.A.1.5 defines a Plant Problem as,

"A potential significant problem requiring disposition, corrective action or a reportability assessment."

Contrary to the above, Maintenance Work Request (MWR) AR 1719, initiated on November 18, 1990, documented a potential significant problem requiring disposition and corrective action, and no Problem Evaluation Report (PER) was initiated. The MWR documented that starting air pressure to one train of the Division 1 diesel air start motors was 250 psig, which is 50 psig above the design rating of the diesel air start motors.

This is a Severity Level IV violation (Supplement 1).

Validity of Violation

The Supply System acknowledges the validity of this violation. The root cause for the violation was Change Management was Less Than Adequate because the bases for a procedure change were not adequately reviewed or assessed.

A Design Change was implemented in December 1986, which removed the relief valves from the air start headers of Emergency Diesel Generators (DG) 1 and 2. The supporting analysis qualified the header piping to the maximum expected pressure of 250 psig, but it did not increase the design limit for the air motors above 200 psig. Also, an engineering evaluation, based on conservative assumptions, indicated that the air start motors could be subject to pressures in excess of 200 psig with an air header pressure of 250 psig. However, the evaluation also determined that the air start motors would remain operable for at least three starts with an assumed air header pressure of 250 psig.

A procedure revision was made and approved in 1987 which changed the header pressure allowable limit from 200 psig to 250 psig. A misconception that the design analysis increased the operating limit up to 250 psig because it qualified the piping to 250 psig appears to be the basis for accepting the inappropriate limit change. However, a more thorough understanding of the design engineering evaluation would have revealed that the air header was not to be operated above 200 psig because of the design rating of the air start motors. Therefore, the procedure change did not adequately consider the consequences of higher header pressure.

MWRs initiated for header pressures above 200 psig were either voided or deferred because the air header pressure was considered acceptable with respect to the high allowable limit of 250 psig in the surveillance procedure. PERs were not written for similar reasons. In instances where the header pressure exceeded 250 psig, an MWR was initiated for the regulator or the existing MWR was referenced. For non-Technical Specification limits, as this is, the Plant procedures allow an MWR to be initiated at the discretion of the Shift Manager in lieu of a PER or Procedure Deviation. The Shift Manager generally consults with the System Engineer to assess operability and problem significance. In this case, problem significance was masked by the inappropriate procedure limit change to 250 psig. Had it been recognized that the limit was in error and/or the air motors were potentially exposed to pressures in excess of their design rating, a PER would have been initiated and appropriate corrective action to reduce pressure would have been taken.

A contributing cause was that the Design Evaluation was Less Than Adequate. A more complete evaluation of the operating pressures at the air start motors may have revealed pressures less than the design rating of the motors with an air header pressure of 250 psig. Tests and/or calculations could have been performed to establish the actual expected conditions.

Another contributing cause was that the Coordination of the Design Change with Design Change Implementation was Less than Adequate because procedure changes were not made to ensure component design limits would not be exceeded. The passive protective feature for the air motors was removed with removal of the relief valves. Therefore, administrative restraints were needed in the surveillance procedures to ensure the air header pressure would not be above 200 psig and subject the air motors to pressures in excess of their design rating during the performance of surveillances. These restraints were not included when the design change was implemented. The restraints have since been added. The four air motors, that could have potentially been damaged from high pressure, were inspected and determined to have been fully operable, with no damage from service conditions.

A third contributing cause included Management Direction was Less Than Adequate because management expectations of the System Engineer were not clearly defined. The System Engineer should have been more alert to the discrepancy between the air header pressure with the degrading pressure regulator and the other three air header pressures, and also the nominal regulator setpoint.

An opportunity occurred during evaluation of Information Notice 89-84 to identify the condition that the air start motors were potentially at risk from high air header pressure. More complete System Engineer awareness of system conditions and surveillance history would have revealed instances where header pressures exceeded 200 psig. This could have possibly prompted further investigation by the Operating Experience Review (OER) Engineer evaluating the Information Notice. In addition, had the OER Engineer verified the information provided by the System

Engineer, the actual operating condition of the system may have been revealed. However, verification of information is based on judgement by the OER Engineer. This occurrence has been factored into Lessons Learned to improve judgement decisions. This contributing cause is also considered management direction less than adequate because management expectations of the System Engineer were not well defined.

Corrective Steps Taken/Results Achieved

- 1) PER 291-0601 was initiated to document failure of pressure regulator DSA-PCV-1A. (The regulator controls the starting air header pressure at a setpoint of 190 psig.)
- 2) The pressure regulator was repaired.
- 3) The four (4) air start motors supplied by DSA-PCV-1A (DSA-M-6A1/1, -6A1/2, -6A2/1, & -6A2/2) were removed for inspection due to possible damage from overpressurization and replaced with spares. Inspection of the air motors revealed no damage from overpressurization.
- 4) The allowable high pressure limit in the surveillance procedures was changed from 250 psig to 200 psig.
- 5) The starting air header pressures for all standby diesel generators have been verified to be within the acceptable limits.
- 6) All appropriate surveillance procedures have been changed to require prestart checks on all DG air start headers to be less than or equal to 200 psig prior to air motor operation.

Corrective Action to be Taken

- 1) Management expectations will be reemphasized to ensure that procedure changes resulting from plant modifications have a sound technical basis and are implemented in accordance with the design bases.
- 2) The process of periodic system inspection and evaluation by System Engineers will be formalized to clarify management expectations of the System Engineers' responsibilities.
- 3) A test will be performed to determine the operating pressures at the air start motors in an attempt to gain additional margin above the current 200 psig limit of the air start motors.

Date of Full Compliance

WNP-2 is in full compliance. This was achieved when: 1) the high pressure limit in the starting air header in all of the applicable surveillance procedures for the standby diesel generators were reduced as described above; 2) the pressure regulator valve DSA-PCV-1A was repaired, 3) the pressure in the starting air header downstream of DSA-PCV-1A was verified to be within the new limits, and 4) the four affected starting air motors were replaced.

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9111050133 DOC. DATE: 91/10/28 NOTARIZED: NO DOCKET #
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
 AUTH. NAME AUTHOR AFFILIATION
 BOUCHEY, G.D. Washington Public Power Supply System
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Amends 911014 response to NRC 910913 ltr re violations noted in Insp Rept 50-397/91-24 on 910715-19 & 0812-16. Corrective actions: pressure regulator repaired & surveillance procedure changed to require prestart checks of all air start headers.

DISTRIBUTION CODE: IE01D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: General (50 Dkt)-Insp Rept/Notice of Violation Response

NOTES:

INTERNAL:	RECIPIENT ID CODE/NAME		COPIES		RECIPIENT ID CODE/NAME	COPIES	
	PD5	PD	LTTR	ENCL		LTTR	ENCL
			1	1	ENG, P.L.	1	1
ACRS			2	2	AEOD	1	1
AEOD/DEIIB			1	1	AEOD/DSP/TPAB	1	1
DEDRO			1	1	NRR HARBUCK, C.	1	1
NRR MORISSEAU, D			1	1	NRR/DLPQ/LHFBPT	1	1
NRR/DLPQ/LPEB10			1	1	NRR/DOEA/OEAB	1	1
NRR/DREP/PEPB9H			1	1	NRR/DST/DIR 8E2	1	1
NRR/PMAS/ILRB12			1	1	NUDOCS-ABSTRACT	1	1
OE DIR			1	1	OGC/HDS1	1	1
REG FILE 02			1	1	RGN5 FILE 01	1	1
EXTERNAL: EG&G/BRYCE, J.H.			1	1	NRC PDR	1	1
NSIC			1	1			

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 24 ENCL 24



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

October 28, 1991
G02-91-196

Docket No. 50-397

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NO. NPF-21
NRC INSPECTION REPORT 91-24
AMENDED RESPONSE TO NOTICE OF VIOLATION

The Washington Public Power Supply System hereby amends our previous reply to the Notice of Violation contained in your letter dated September 13, 1991. Our reply, pursuant to the provisions of Section 2.201, Title 10, Code of Federal Regulations, consists of this letter and Appendix A (attached).

In Appendix A, the violation is addressed with an explanation of our position regarding validity, root causes, and date of full compliance. As noted in our initial response on October 14, 1991, this revision was necessary to provide the final results of the root cause analysis and appropriate corrective actions to prevent recurrence. Our prior response also addressed the deficiencies in the System Engineering program and the planned improvements to strengthen the effectiveness of the System Engineer.

Very truly yours,

G. D. Bouchey, Director
Licensing & Assurance

REF/bk
Attachments

cc: JB Martin - NRC RV
NS Reynolds - Winston & Strawn
PL Eng - NRR
DL Williams - BPA/399
NRC Site Inspector - 901A

9111050133 911028
PDR ADOCK 05000397
Q PDR

6.10024

IEO1
11



Appendix A

During an NRC inspection conducted on July 15 through 19 and August 12 through 16, 1991, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1991), the violation is listed below:

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings", states, in part,

"Activities affecting quality...shall be accomplished in accordance with these instructions, procedures or drawings..."

Licensee Administrative Procedure PPM 1.3.12, Revision 13, "Plant Problems - Problem Evaluation Request" states, in part,

"Any Supply System employee who observes a plant problem or a potential significant problem should immediately notify his/her Supervisor and initiate a PER."

Paragraph 1.3.12.3.A.1.5 defines a Plant Problem as,

"A potential significant problem requiring disposition, corrective action or a reportability assessment."

Contrary to the above, Maintenance Work Request (MWR) AR 1719, initiated on November 18, 1990, documented a potential significant problem requiring disposition and corrective action, and no Problem Evaluation Report (PER) was initiated. The MWR documented that starting air pressure to one train of the Division 1 diesel air start motors was 250 psig, which is 50 psig above the design rating of the diesel air start motors.

This is a Severity Level IV violation (Supplement 1).

Validity of Violation

The Supply System acknowledges the validity of this violation. The root cause for the violation was Change Management was Less Than Adequate because the bases for a procedure change were not adequately reviewed or assessed.

A Design Change was implemented in December 1986, which removed the relief valves from the air start headers of Emergency Diesel Generators (DG) 1 and 2. The supporting analysis qualified the header piping to the maximum expected pressure of 250 psig, but it did not increase the design limit for the air motors above 200 psig. Also, an engineering evaluation, based on conservative assumptions, indicated that the air start motors could be subject to pressures in excess of 200 psig with an air header pressure of 250 psig. However, the evaluation also determined that the air start motors would remain operable for at least three starts with an assumed air header pressure of 250 psig.

A procedure revision was made and approved in 1987 which changed the header pressure allowable limit from 200 psig to 250 psig. A misconception that the design analysis increased the operating limit up to 250 psig because it qualified the piping to 250 psig appears to be the basis for accepting the inappropriate limit change. However, a more thorough understanding of the design engineering evaluation would have revealed that the air header was not to be operated above 200 psig because of the design rating of the air start motors. Therefore, the procedure change did not adequately consider the consequences of higher header pressure.

MWRs initiated for header pressures above 200 psig were either voided or deferred because the air header pressure was considered acceptable with respect to the high allowable limit of 250 psig in the surveillance procedure. PERs were not written for similar reasons. In instances where the header pressure exceeded 250 psig, an MWR was initiated for the regulator or the existing MWR was referenced. For non-Technical Specification limits, as this is, the Plant procedures allow an MWR to be initiated at the discretion of the Shift Manager in lieu of a PER or Procedure Deviation. The Shift Manager generally consults with the System Engineer to assess operability and problem significance. In this case, problem significance was masked by the inappropriate procedure limit change to 250 psig. Had it been recognized that the limit was in error and/or the air motors were potentially exposed to pressures in excess of their design rating, a PER would have been initiated and appropriate corrective action to reduce pressure would have been taken.

A contributing cause was that the Design Evaluation was Less Than Adequate. A more complete evaluation of the operating pressures at the air start motors may have revealed pressures less than the design rating of the motors with an air header pressure of 250 psig. Tests and/or calculations could have been performed to establish the actual expected conditions.

Another contributing cause was that the Coordination of the Design Change with Design Change Implementation was Less than Adequate because procedure changes were not made to ensure component design limits would not be exceeded. The passive protective feature for the air motors was removed with removal of the relief valves. Therefore, administrative restraints were needed in the surveillance procedures to ensure the air header pressure would not be above 200 psig and subject the air motors to pressures in excess of their design rating during the performance of surveillances. These restraints were not included when the design change was implemented. The restraints have since been added. The four air motors, that could have potentially been damaged from high pressure, were inspected and determined to have been fully operable, with no damage from service conditions.

A third contributing cause included Management Direction was Less Than Adequate because management expectations of the System Engineer were not clearly defined. The System Engineer should have been more alert to the discrepancy between the air header pressure with the degrading pressure regulator and the other three air header pressures, and also the nominal regulator setpoint.

An opportunity occurred during evaluation of Information Notice 89-84 to identify the condition that the air start motors were potentially at risk from high air header pressure. More complete System Engineer awareness of system conditions and surveillance history would have revealed instances where header pressures exceeded 200 psig. This could have possibly prompted further investigation by the Operating Experience Review (OER) Engineer evaluating the Information Notice. In addition, had the OER Engineer verified the information provided by the System



Engineer, the actual operating condition of the system may have been revealed. However, verification of information is based on judgement by the OER Engineer. This occurrence has been factored into Lessons Learned to improve judgement decisions. This contributing cause is also considered management direction less than adequate because management expectations of the System Engineer were not well defined.

Corrective Steps Taken/Results Achieved

- 1) PER 291-0601 was initiated to document failure of pressure regulator DSA-PCV-1A. (The regulator controls the starting air header pressure at a setpoint of 190 psig.)
- 2) The pressure regulator was repaired.
- 3) The four (4) air start motors supplied by DSA-PCV-1A (DSA-M-6A1/1, -6A1/2, -6A2/1, & -6A2/2) were removed for inspection due to possible damage from overpressurization and replaced with spares. Inspection of the air motors revealed no damage from overpressurization.
- 4) The allowable high pressure limit in the surveillance procedures was changed from 250 psig to 200 psig.
- 5) The starting air header pressures for all standby diesel generators have been verified to be within the acceptable limits.
- 6) All appropriate surveillance procedures have been changed to require prestart checks on all DG air start headers to be less than or equal to 200 psig prior to air motor operation.

Corrective Action to be Taken

- 1) Management expectations will be reemphasized to ensure that procedure changes resulting from plant modifications have a sound technical basis and are implemented in accordance with the design bases.
- 2) The process of periodic system inspection and evaluation by System Engineers will be formalized to clarify management expectations of the System Engineers' responsibilities.
- 3) A test will be performed to determine the operating pressures at the air start motors in an attempt to gain additional margin above the current 200 psig limit of the air start motors.

Date of Full Compliance

WNP-2 is in full compliance. This was achieved when: 1) the high pressure limit in the starting air header in all of the applicable surveillance procedures for the standby diesel generators were reduced as described above; 2) the pressure regulator valve DSA-PCV-1A was repaired, 3) the pressure in the starting air header downstream of DSA-PCV-1A was verified to be within the new limits, and 4) the four affected starting air motors were replaced.

